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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,467	08/26/2003	Yukio Asari	009270-0305494	2316
909	7590	12/21/2004	EXAMINER	
PILLSBURY WINTHROP, LLP			MORRISON, THOMAS A	
P.O. BOX 10500			ART UNIT	
MCLEAN, VA 22102			PAPER NUMBER	

3653

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

10/647,467

Applicant(s)

ASARI, YUKIO

Examiner

Thomas A. Morrison

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 08/26/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1-3, 5 and 7-8 are objected to because of the following informalities: (a) the term "controll" in claim 1, line 11 should be -- control --; (b) "specified conveying gap" in line 13 should be -- specified gap --; (c) "plural sheets" in line 14 should be -- the plural sheets --; (d) "lengths" in claim 2, line 4 should be -- the lengths --; (e) "reaches" in claim 3, line 4 should be -- reach --; (f) "normal/reverse rotation" in claim 5, line 6 should be -- normal and reverse rotations --; (g) "reaches" in claim 7, line 4 should be -- reach --; (h) "control steps" in claims 7 and 8 should be -- control step --. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 5 and their dependent claims 2-8, these claims require a controller to control or controlling the conveyance of the sheets so that the conveying gap between the sheets conveyed on the second conveying path becomes equal to the specified conveying gap when conveyed on the first conveying path regardless of lengths of plural sheets. It is unclear what is controlled by the controller in order to

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make the gaps equal on the first and second conveying paths. Does the controller control the reversing roller or some other element?

Also, it is unclear in claims 1 and 5 as to where the specified gap is located. Is the specified gap located between the rear edge of one conveyed sheet and the front edge of the next conveyed sheet?

Moreover, claim 1 recites the limitation "the conveying direction" in line 4. There is insufficient antecedent basis for this limitation in the claim.

In addition, claim 5 recites the limitation "the conveying gap" in line 10. There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 8, it is unclear what becomes in accord with each other. Do the velocities become in accord with each other?

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Repp et al. in view of Stoll. In particular, the combination of Repp et al. and Stoll discloses all of the limitations of claims 1-8.

Regarding independent claim 1, Figs. 1 and 4 of Repp et al. show a sheet reversing controller (500) including

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a first conveying path (from fuser F into nip between 501 and 502) to convey plural sheets in a first direction with a specified gap;

a reversing portion (including 504 and 505) arranged at the downstream in the conveying direction of the first conveying path (from fuser F into nip between 501 and 502), comprising a reversing roller (504) capable of normal and reverse rotations to take and reverse the sheets fed from the first conveying path (from fuser F into nip between 501 and 502) and a pinch roller (505) arranged opposing to the reversing roller (504);

a second conveying path (through nip between 502 and 503 and into duplex tray 400) to take and convey the sheets fed in a second direction differing from the first direction of the first conveying path (from fuser F into nip between 501 and 502) by the reversing portion (including 504 and 505); and

a controller (101) to control the conveyance of the sheets. Repp et al. discloses controlling the conveyance of the sheets, but does not specifically disclose controlling the conveyance of the sheets so that the conveying gap between the sheets conveyed on the second conveying path becomes equal to the conveying gap when conveyed on the first conveying path regardless of lengths of plural sheets.

The Stoll patent discloses that it is well known to control the conveyance of sheets (31, 32) in a sheet reversing controller via a controller (100) so that the final inter-sheet gap between the sheets conveyed on a second conveying path becomes equal to the initial inter-sheet gap when conveyed on the first conveying path and that the reversing controller accommodates different paper lengths. (See Figs. 1-7, column 1, lines 39-44, column 6, lines 62-67 and column 7, line 52 to column 8, line 65 of Stoll).

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It would have been obvious to one of ordinary skill in the art at the time of the invention, to operate the controller (101) of Repp et al. so that the gap of the sheets conveyed on the second conveying path is equal to the gap when conveyed on the first conveying path regardless of paper length, in order to improve high speed printing productivity, as taught by Stoll.

Turning now to independent claim 5, Repp et al. discloses a sheet reversing control method including

conveying plural sheets on a first conveying path (from fuser F into a nip between 501 and 502) in a first direction with a specified gap;

taking and reversing the sheets fed from the first conveying path (from fuser F into a nip between 501 and 502) in a reversing portion (including 504 and 505) arranged at the downstream in a conveying direction of the first conveying path (from fuser F into a nip between 501 and 502) comprising a reversing roller (504) that is capable of normal/reverse rotation and a pinch roller (505) arranged opposing to the reversing roller (504);

taking the sheets in a second direction differing from the first direction after reversing by the reversing portion (including 504 and 505) and conveying on the second conveying path (through nip between 502 and 503 and into duplex tray 400). Repp et al. also discloses controlling a conveyance of the sheets, but does not specifically disclose controlling a conveyance of the sheets so that the conveying gap of the sheets conveyed on the second conveying path becomes equal to the specified gap when conveyed on the first conveying path regardless of the lengths of the plural sheets.

Again, The Stoll patent discloses that it is well known to control the conveyance of sheets (31, 32) in a sheet reversing controller via a controller (100) so that the final inter-sheet gap between the sheets conveyed on a second conveying path becomes equal to the initial inter-sheet gap when conveyed on the first conveying path and that the reversing controller accommodates different paper lengths. (See Figs. 1-7, column 1, lines 39-44, column 6, lines 62-67 and column 7, line 52 to column 8, line 65 of Stoll). It would have been obvious to one of ordinary skill in the art at the time of the invention, to operate the controller (101) of Repp et al. so that the gap of the sheets conveyed on the second conveying path is equal to the gap when conveyed on the first conveying path regardless of paper length, in order to improve high speed printing productivity, as taught by Stoll.

Regarding claims 2 and 6, Fig. 4 of Repp et al. shows that the controller (101) sets a protruding amount of the sheets protruding between the reversing portion (including 504 and 505) and the second conveying path (through the nip between 502 and 503 and into duplex tray 400) when the sheets are stopped for reversing the conveying direction of the sheets to a fixed length regardless of lengths of the sheets. For example, the protruding amount is set via the sensor S1.

Regarding claims 3 and 7, Stoll also discloses that it is desirable to control a velocity of all of the sheet transports (e.g., reversing rollers) in the inverters system that rotate so as to agree with a conveying velocity of the sheets before the sheets fed from a first conveying path (13) reach the sheet transports (reversing rollers) to reduce sheet acceleration and deceleration problems. (See column 7, line 53 to column 8, line 2 of

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Stoll). It would have been obvious to one of ordinary skill in the art at the time of the invention, to operate the controller of Repp et al. so that the sheet reversing roller of Repp et al. is at the same velocity as the sheet conveying velocity, to reduce sheet acceleration and deceleration problems, as taught by Stoll.

Regarding claims 4 and 8, Stoll discloses that it is well known to control the velocities of upstream and downstream components so that they have the same velocities in order to avoid paper slippage and other handoff problems, e.g., controlling velocities of elements of inverter systems. See, e.g., column 2, lines 20-50. It would have been obvious to one of ordinary skill in the art at the time of the invention, to control the velocity of the reversing roller (504) of Repp et al. via the controller (101) so that the reversing roller (504) when rotating in a reverse direction to feed the sheets in the second direction agrees with the conveying velocity of the second conveying path, to avoid paper slippage and handoff problems, as taught by Stoll.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent No. 6,322,069 (Krucinski et al.), U.S. Patent No. 6,612,572 (Mohr et al.) and U.S. Patent No. 6,751,524 (Neary et al.) disclose control devices to control gaps between different paths;

U.S. Patent No. 5,461,468 (Dempsey et al.), U.S. Patent No. 5,689,795 (Mastrandrea) and U.S. Patent No. 4,331,328 (Fasig) disclose gap control systems with controllers;



U.S. Patent No. 5,449,164 (Quesnel et al.) discloses a sheet inverter with a controller and first and second paths;


U.S. Patent No. 6,132,352 (Rider) discloses a sheet inverter with a reversing roller and a nip; and

U.S. Patent No. 5,887,868 (Lambert et al.) discloses a sheet inverter with first and second paths and a controller that controls the timing of sheets.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is 703-305-0554. The examiner can normally be reached on M-F, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Walsh can be reached on 703-306-4173. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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